Northern

NVRPOE Series

Models: NVR4POE, NVR8POE & NVR16POE

Quick Guide

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Regulatory information

FCC information

FCC compliance: This equipment has been tested and found to comply with the limits for a digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC conditions

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

EU Conformity Statement

CE

This product and - if applicable - the supplied accessories too are marked with "CE" and comply therefore with the applicable harmonized European standards listed under the Low Voltage Directive 2006/95/EC, the EMC Directive 2004/108/EC, the RoHS Directive 2011/65/EU.

2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info.

2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see: www.recyclethis.info.

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NVR Pre-Installation

The NVR is highly advanced surveillance equipment that should be installed with care. Please take into consideration the following precautionary steps before installation of the NVR.

1. Keep all liquids away from the NVR.
2. Install the NVR in a well-ventilated and dust-free area.
3. Ensure environmental conditions meet factory specifications.
4. Install a manufacturer recommended HDD.

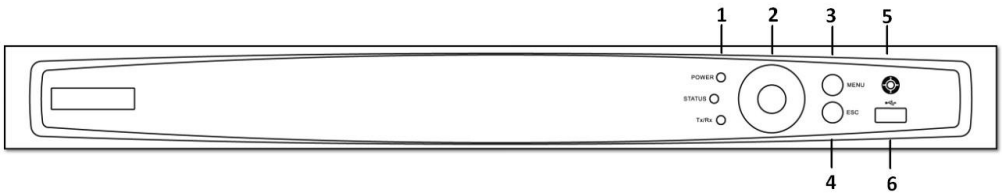
NVR Installation

During the installation of the NVR:

1. Use brackets for rack mounting (NVR8POE&NVR16POE Only).
2. Ensure there is ample room for audio and video cables.
3. When routing cables, ensure that the bend radius of the cables are no less than five times than its diameter.
4. Connect both the alarm and RS-485 cable.
5. Allow at least 2cm (≈0.75-inch) of space between racks mounted devices.
6. Ensure the NVR is grounded.
7. Environmental temperature should be within the range of -10 ℃ ~ 55 ℃, 14 ℉ ~ 131 ℉.
8. Environmental humidity should be within the range of 10% ~ 90%.

Front Panel

NVR4POE / NVR8POE / NVR16POE Series

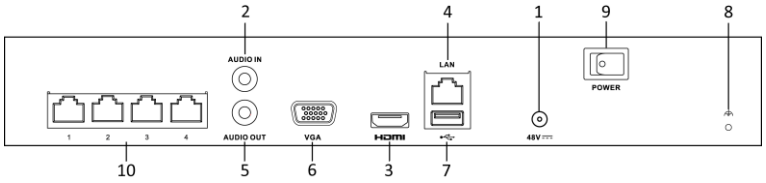


No.	Name	Function Description
1	**POWER**	POWER indicator turns green when DVR is powered up.
	STATUS	STATUS indicator lights in red when data is being read from or written to HDD.
	Tx/Rx	Tx/Rx indictor blinks green when network connection is functioning properly.

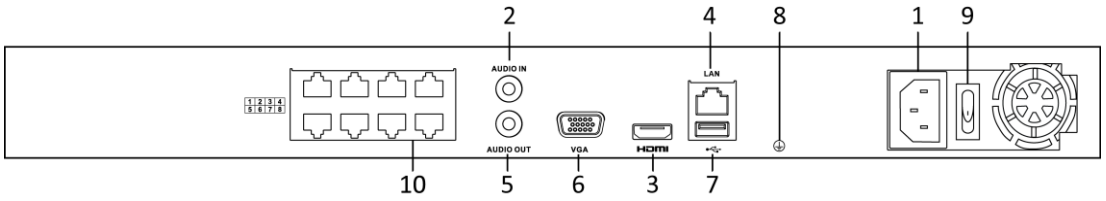
2	**DIRECTION**	The DIRECTION buttons are used to navigate between different fields and items in menus. In the Playback mode, the Up and Down button is used to speed up and slow down recorded video. The Left and Right button will select the next and previous record files. In Live View mode, these buttons can be used to cycle through channels. In PTZ control mode, it can control the movement of the PTZ camera.
	ENTER	The ENTER button is used to confirm selection in any of the menu modes. It can also be used to *tick* checkbox fields. In Playback mode, it can be used to play or pause the video. In single-frame Playback mode, pressing the button will advance the video by a single frame.
3	**MENU**	Access the main menu interface.
4	**ESC**	Exit and back to the previous menu.
5	**IR Receiver**	Receiver for IR remote.
6	**USB Interface**	Connects USB mouse or USB flash memory devices.

Rear Panel

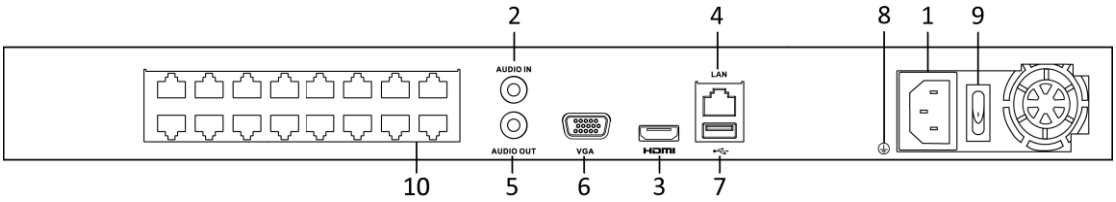
NVR4POE / NVR8POE / NVR16POE



NVR4POE



NVR8POE



NVR16POE

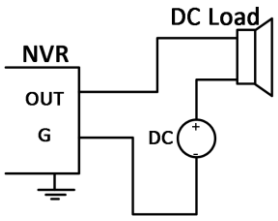
No.	Item	Description
1	**Power Supply**	48V DC power supply for NVR4POE and AC 100~240V for NVR8POE/NVR16POE.
2	**Audio In**	RCA connector for audio input.
3	**HDMI Interface**	HDMI video output connector.
4	**LAN Network Interface**	1 10 /100 /1000 Mbps self-adaptive Ethernet interface

No.	Item	Description
5	**Audio Out**	RCA connector for audio output.
6	**VGA Interface**	DB9 connector for VGA output. Display local video output and menu.
7	**USB Interface**	Universal Serial Bus (USB) ports for additional devices such as USB mouse and USB Hard Disk Drive (HDD).
8	**Ground**	Ground (needs to be connected when NVR starts up).
9	**Power Switch**	Switch for turning on/off the device.
10	**Network Interfaces with PoE function**	Network interfaces for the cameras and to provide power over Ethernet.

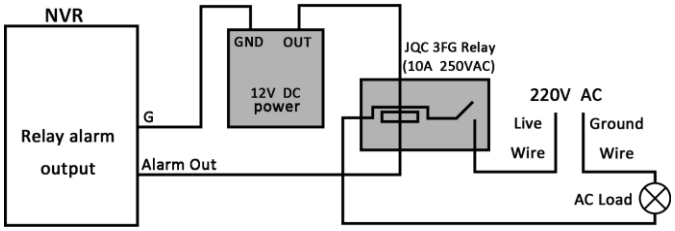
Peripheral Connections

Wiring of Alarm Output

To connect to an alarm output (AC or DC load), use the following diagram:



DC Load Connection Diagram



AC Load Connection Diagram

For DC load, the jumpers can be used within the limit of 12V/1A safely.

To connect an AC load, jumpers should be left open (you must remove the jumper on the motherboard in the NVR). Use an external relay for safety (as shown in the figure above).

There are 4 jumpers (JP1, JP2, JP3, and JP4) on the motherboard, each corresponding with one alarm output. By default, jumpers are connected. To connect an AC load, jumpers should be removed.

Example:

If you connect an AC load to the alarm output 3 of the NVR, then you must remove the JP 3.

Using of Alarm Connectors

To connect alarm devices to the NVR:

1. Disconnect *pluggable block* from the ALARM IN /ALARM OUT terminal block.
2. Unfasten stop screws from the *pluggable block*, insert signal cables into slots and fasten stop screws. Ensure signal cables are in tight.
3. Connect *pluggable block* back into terminal block.

Specifications

Specifications of NVR4POE / NVR8POE / NVR16POE

Model		NVR4POE	NVR8POE	NVR16POE
Video/Audio input	IP video input	4-ch	8-ch	16-ch
	Two-way audio input	1-ch, RCA (2.0 Vp-p, 1kΩ)		
Network	Incoming bandwidth	40Mbps	80Mbps	160Mbps
	Outgoing bandwidth	80Mbps		
	Remote connection	32	128	
Video/Audio output	Recording resolution	6MP/5MP/3MP/1080P/UXGA/720P/VGA/4CIF/DCIF/2CIF/CIF/QCIF		
	Frame rate	Main stream: 50 fps (P) / 60 fps (N)		
		Sub-stream: 50 fps (P) / 60 fps (N)		
	HDMI/VGA output	1-ch, resolution: 1920 ×1080P /60Hz, 1600 ×1200 /60Hz, 1280 ×1024 /60Hz, 1280 ×720 /60Hz, 1024 ×768 /60Hz		
	Audio output	1-ch, RCA (Linear, 1kΩ)		
Decoding	Live view / Playback resolution	6MP/5MP/3MP/1080P/UXGA/720P/VGA/4CIF/DCIF/2CIF/CIF/QCIF		
	Capability	4-ch@1080P	8-ch@720P, 6-ch@1080P	16-ch@4CIF, 12-ch@720P, 6-ch@1080P
Hard disk	SATA	1 SATA interface for 1 HDD	2 SATA interfaces for 2 HDDs	
	Capacity	Up to 6TB for each disk		
External interface	Network interface	1 RJ-45 10 /100 /1000 Mbps self-adaptive Ethernet interface		
	USB interface	1 ×USB 2.0 and 1 ×USB 3.0		
	Alarm in/out (Optional)	4 / 1		
PoE	Network Interface	4 independent 100 Mbps PoE	8 independent 100 Mbps PoE	16 independent 100 Mbps PoE
	Max. Power	50W	120W	200W
	Supported standard	AF and AT		
Others	Power supply	48V DC	220V AC	
	Consumption (without hard disk and PoE)	≤ 10W		≤ 15W
	Working temperature	-10 ℃ ~ +55 ℃ (+14 ℉~ + 131 ℉)		
	Working humidity	10 % ~ 90 %		
	Chassis	1U chassis	19-inch rack-mount 1U chassis	15-inch rack –mount 1U chassis
	Dimensions (W ×D ×H)	315 ×230 ×45mm (12.4"×9.1"×1.8")	445 ×290 ×45mm (17.5" ×11.4" ×1.8")	380 ×290 ×48mm (15.0" ×11.4" ×1.9")
	Weight (without hard disk)	≤ 1 kg (2.2 lb)		

HDD Storage Calculation Chart

The following chart shows an estimation of storage space used based on recording at one channel for an hour at a fixed bit rate.

Bit Rate	Storage Used
96K	42M
128K	56M
160K	70M
192K	84M
224K	98M
256K	112M
320K	140M
384K	168M
448K	196M
512K	225M
640K	281M
768K	337M
896K	393M
1024K	450M
1280K	562M
1536K	675M
1792K	787M
2048K	900M
4096K	1.8G
8192K	3.6G
16384K	7.2G

Please note that supplied values for storage space used is just for reference. The storage values in the chart are estimated by formulas and may have some deviation from actual value.

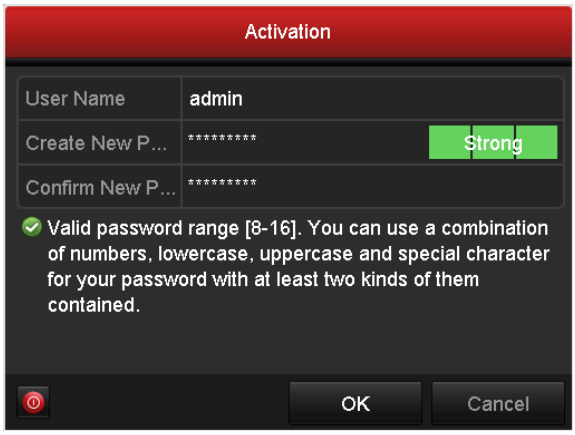
Setting up Admin Password

Purpose:

For first-time access, you will need to activate the device by setting an admin password. No operation is allowed before this activation process. You can also activate the device via Web Browser, SADP or Client Software.

Steps:

1. Input the same password in the text field of **Create New Password** and **Confirm New Password**.



STRONG PASSWORD RECOMMENDED– *We highly recommend you create a strong password of your own choosing (using a minimum of 8 characters, including upper case letters, lower case letters, numbers, and special characters) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.*

2. Click **OK** to save the password and activate the device.

NOTE For uninterrupted access to the NVR itt is very important you remember the password created during this activation process. For security purposes, in the event of a forgotten password, you will be required to email technical support with specific NVR information. It may take up to one business day hours to receive the password reset information. You can reach technical support at techsupport@northernvideo.com

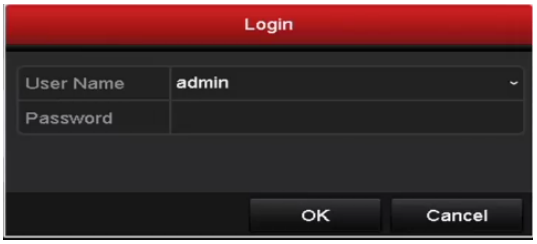
Login and Logout

Purpose:

You must log into the device before operating the menu and other functions.

Steps:

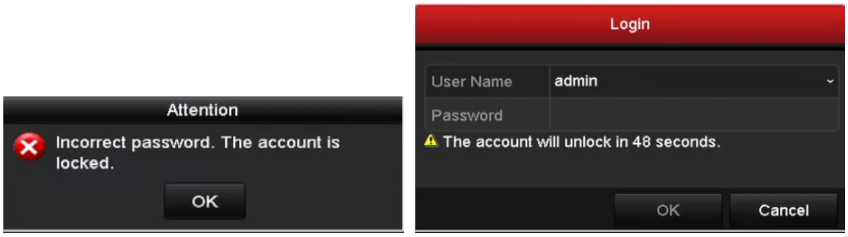
1. Select the **User Name** in the dropdown list.



2. Input **Password**.

3. Click **OK** to log in.

The device will be locked for 60 seconds if the admin user performs 7 failed password attempts (5 attempts for the guest/operator).



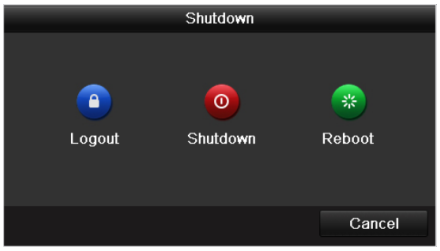
User Logout

Purpose:

After logging out, the monitor returns to live view mode for any menu operations, you will need to enter user name and password to log in again.

Steps:

1. Enter the Shutdown menu.
   Menu > Shutdown



2. Click **Logout**.

Accessing by Web Browser

- The unit is set to DHCP by default and will pull a DHCP address when connected to your network. This address can found by entering the NVR Menu > Configuration > Network > General Tab. If the unit does not pull a DHCP address, the default IP address is 192.0.0.64.
- You shall acknowledge that the use of the product with Internet access might be under network security risks. For avoidance of any network attacks and information leakage, please strengthen your own protection by creating a “strong” level password.

Logging In

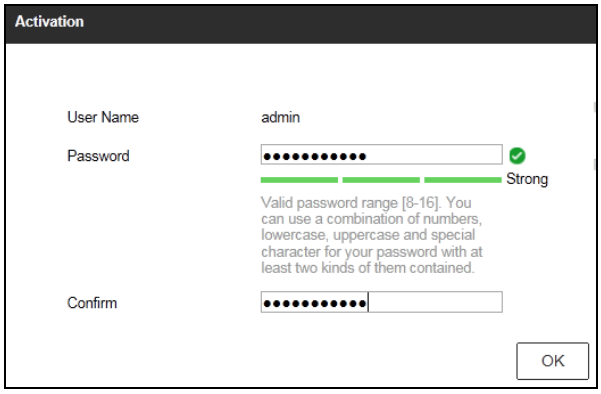
You can get access to the device via a web browser. You may use one of the following listed web browsers: Internet Explorer 6.0, Internet Explorer 7.0, Internet Explorer 8.0, Internet Explorer 9.0, Internet Explorer 10.0, Internet Explorer 11.0, Apple Safari, Mozilla Firefox, and Google Chrome. The supported resolutions include 1024*768 and above.

Steps:

1. Open web browser, input the IP address of the device and then press Enter.

2. Login to the device.

- If the device has not been activated, you need to activate the device first before login.


Activation
User Name
admin
Password
Strong
Valid password range [8-16]. You can use a combination of numbers, lowercase, uppercase and special character for your password with at least two kinds of them contained.
Confirm
OK

1) Set the password for the admin user account

2) Click **OK** to login to the device.

STRONG PASSWORD RECOMMENDED– *We highly recommend you create a strong password of your own choosing (using a minimum of 8 characters, including upper case letters, lower case letters, numbers, and special characters) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.*

- If the device is already activated, enter the user name and password in the login interface, and click the **Login** button.

3. Install the plug-in before viewing the live video and managing the camera. Please follow the installation prompts to install the plug-in. ***You may have to close the web browser to finish the installation of the plug-in.***

NOTE

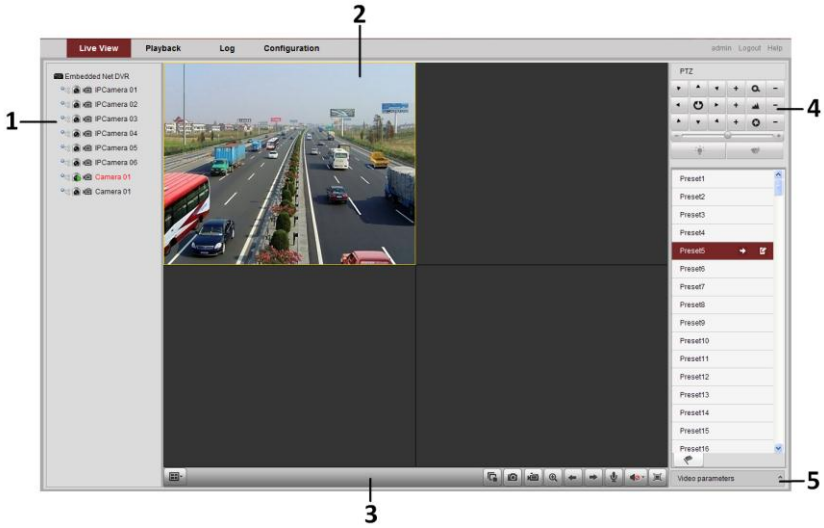
- You may use one of the following listed web browsers: Internet Explorer 6.0, Internet Explorer 7.0, Internet Explorer 8.0, Internet Explorer 9.0, Internet Explorer 10.0, Internet Explorer 11.0, Apple Safari, Mozilla Firefox, and Google Chrome.
- The supported resolutions include 1024*768 and above.

When you log in for the first time, the system will remind you to install the Plug-in control. After the installation,

you can configure and manage the device remotely.

Live View

The live view interface appears by default when you log in the device.



NOTE

The live view interface may differ according to different models.

Interface Introduction

No.	Name	Description
1	Channel List	Displays the list of channels and the playing and recording status of each channel. NOTE The stream type can be switched by clicking the icon before the channel name: stands for main stream and for sub-stream.
2	Live View Window	Displays the image of channel, and multi-window division is supported.
3	Play Control Bar	Play control operations are supported.
4	PTZ Control	Pan, tilt, zoom operations are supported, as well as preset editing and calling. NOTE PTZ function can only be realized if the connected camera supports PTZ control.
5	Video Parameters Configuration	Brightness, contrast, saturation and hue of the image can be edited.

Start Live View

Steps:

1. In the live view window, select a playing window by clicking the mouse.
2. Double click a camera from the device list to start the live view.

3. You can click the button on the toolbar to start the live view of all cameras on the device list.

Refer to the following table for the description of buttons on the live view window:

Icon	Description	Icon	Description
	Select the window-division mode		Open/Close audio
	Start/Stop all live view		Start/Stop two-way Audio
	Capture pictures in the live view mode		Adjust volume
	Start/Stop all recording		Enable/Disable digital zoom
	Previous/Next page		Full screen

Recording

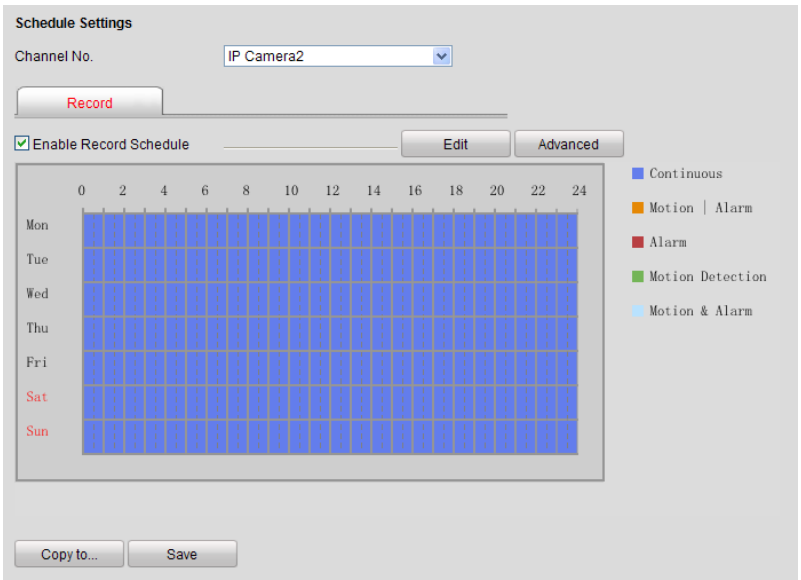
Before you start

Make sure the device is connected with HDD or network disk, and the HDD or network disk has been initialized for the first time to use.

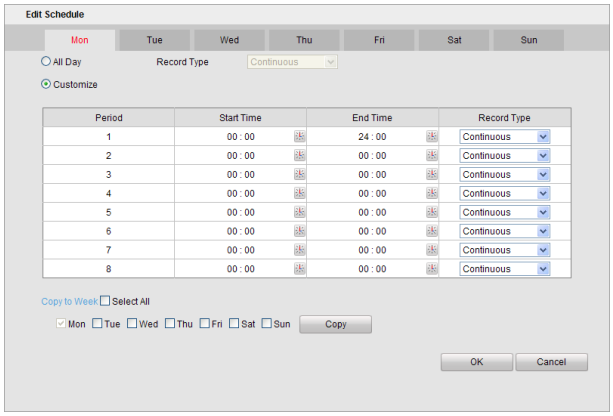
Two recording types can be configured: Manual and Scheduled. The following section introduces the configuration of scheduled recording.

Steps:

1. Click **Remote Configuration> Camera Settings> Record Schedule** to enter Record Schedule settings interface.
2. Select the camera to configure the record schedule.
3. Check the checkbox of **Enable Schedule** to enable recording schedule.



4. Choose the day in a week to configure scheduled recording.
5. Click **Edit** to edit record schedule**.**



1) Configure All Day or Customize Record:

- If you want to configure the all-day recording, please check the **All Day** checkbox.
- If you want to record in different time sections, check the **Customize** checkbox. Set the **Start Time** and **End Time.**

NOTE

Up to 8 segments can be configured and each segment cannot be overlapped.

2) Select a **Record Type**. The record type can be Continuous, Motion, Alarm, Motion & Alarm and Motion | Alarm.

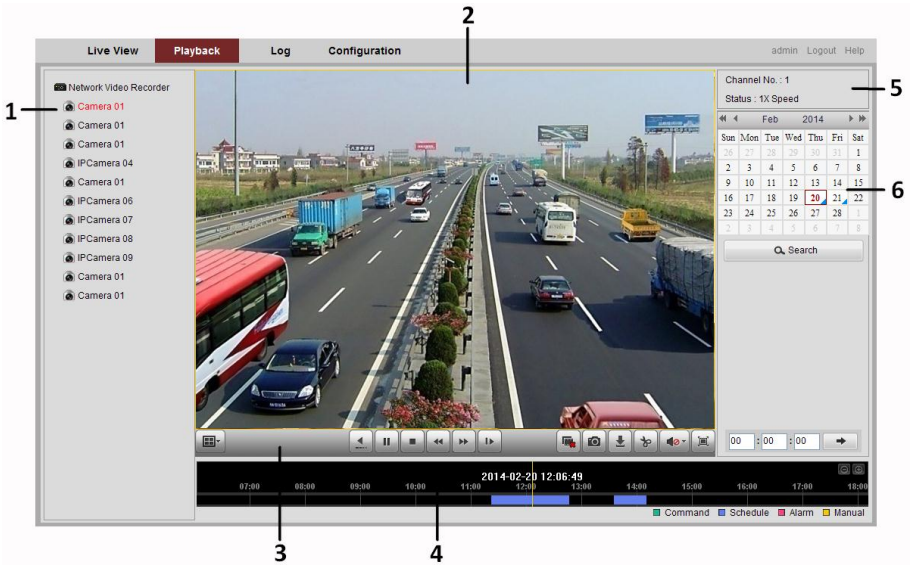
3) Check the checkbox of **Select All** and click **Copy** to copy settings of this day to the whole week. You can also check any of the checkboxes before the date and click **Copy**.

4) Click **OK** to save the settings and exit the **Edit Schedule** interface.

6. Click **Advanced** to configure advanced record parameters**.**

7. Click **Save** to activate the above settings.

Playback



Interface Introduction

No.	Name	Description
1	Channel List	Displays the list of channels and the playing status of each channel.

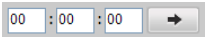
2	Playback Window	Displays the image of channel.
3	Play Control Bar	Play control operations are supported.
4	Time Line	Displays the time bar and the records marked with different colors.
5	Playback Status	Displays the playback status, including channel number and playback speed.
6	Calendar	You can select the date to play.

Start Playback

Steps:

1. Click **Playback** on the menu bar to enter playback interface.
2. Click the camera from the device list for playback.
3. Select the date from the calendar and click **Search**.
4. Click the **Play** button to play the video file searched on the current date.
5. Use the buttons on the toolbar to operate in playback mode.

Button	Description	Button	Description
	Play/Pause		Stop
	Slow down		Speed up
	Play by single frame		Capture
	Stop all playback		Download
	Video clip		Open/Close audio
	Full screen		Reverse playback

6. You can drag the progress bar with the mouse to locate the exact playback point. You can also input the time in the textbox  and click button to locate the playback point.
   The color of the video on the progress bar stands for the different video types.

Log

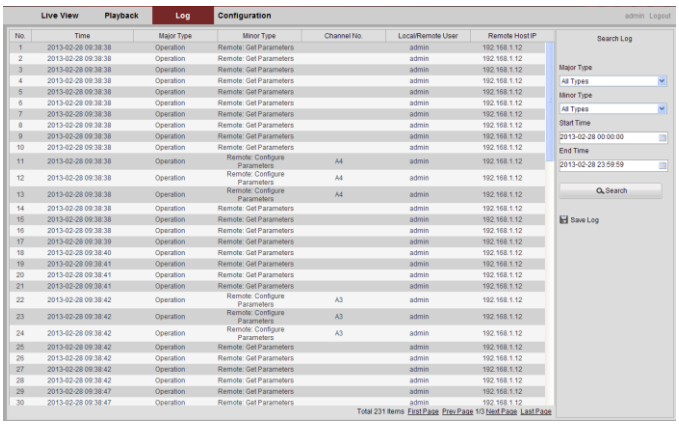
You can view and export the log files at any time, including operation, alarm, exception and information of device.

Before you start:

The Log function can be realized only when the device has a Hard Drive installed.

Steps:

1. Click **Log** on the menu bar to enter the Log interface.



2. Set the log search conditions to refine your search, including the Major Type, Minor Type, Start Time and End Time.
3. Click the **Search** button to start searching log files.
4. The matched log files will be displayed on the list.

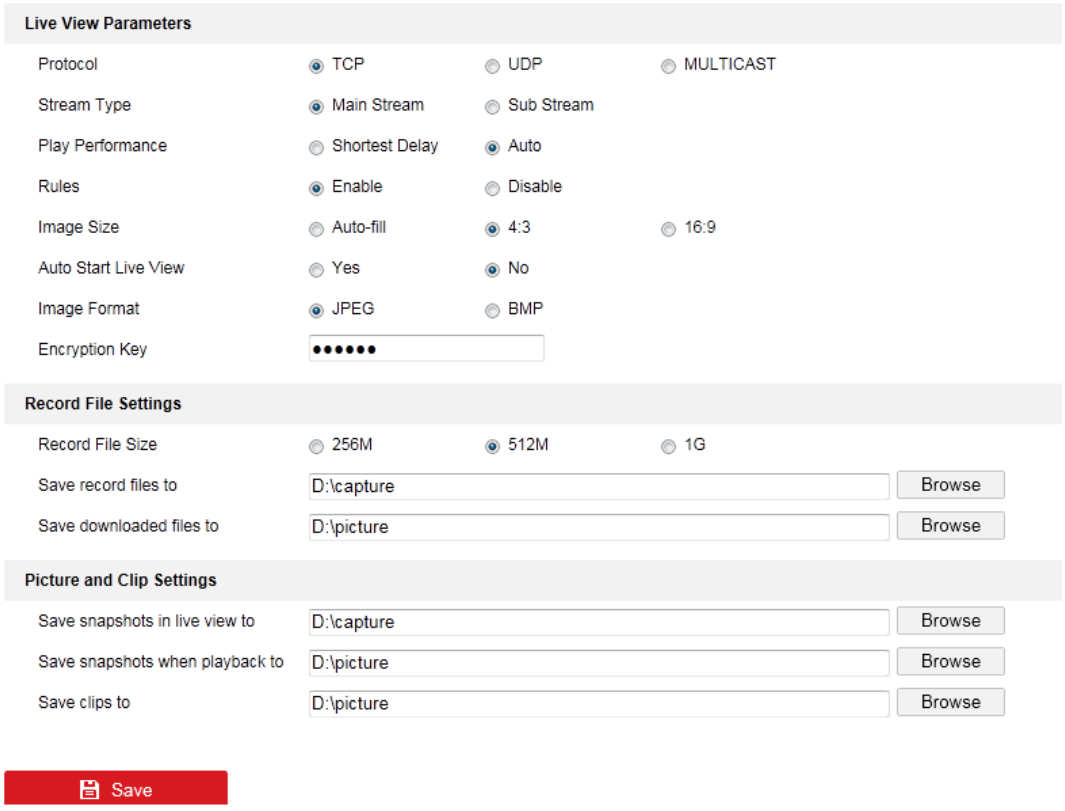
NOTE

Up to 2000 log files can be found each time, and 100 log files can be displayed on each page.

You can click the Save Log button to save the searched log files to local directory.

Configuration

The configuration tab is used to access many of the same features available when working directly from the NVR as well as some features which are only available through the Web Browser. This section focuses on those features that can only be accessible through the Web Browser.



Local Configuration (PC/Browser settings)

Protocol – Choose between TCP, UDP and MULTICAST (TCP is recommended).

Stream Type – Select between Main Stream or Sub Stream for remote viewing.

Play Performance – Choose either Shortest Delay, Real Time, Balanced or Fluency for viewing quality settings.

Rules – Enable or Disable Rules (this section requires rules be set up on individual cameras first – for setting up rules please refer to the Northern IP camera Manual).

Image Size – Select to display cameras in 4:3 or 16:9 aspect ratios.

Auto Start Live View – Check this box if you want your live view cameras to populate in the live view window automatically. If left unchecked cameras will have to be added manually to the live view window.

Image Format-Select JEPG or BMP.

Encryption Key: Input the stream encryption key for live view if stream encryption is enabled.

Record File Size – Select either 512M or 1G record file sizes.

The following section is for setting up the file paths where you would like Record Files, Snapshots in Live/Playback, Clips and Downloaded files to record to. Each option provides a browse button which can be clicked on to select a file path directory.

Save Record Files to:

Save Download files to

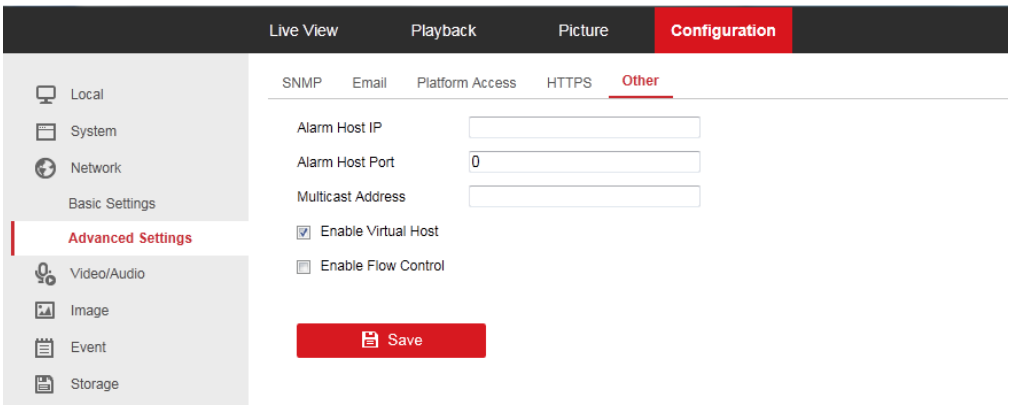
Save Snapshots in Live View to:

Save Snapshots in Playback to:

Save Clips to:

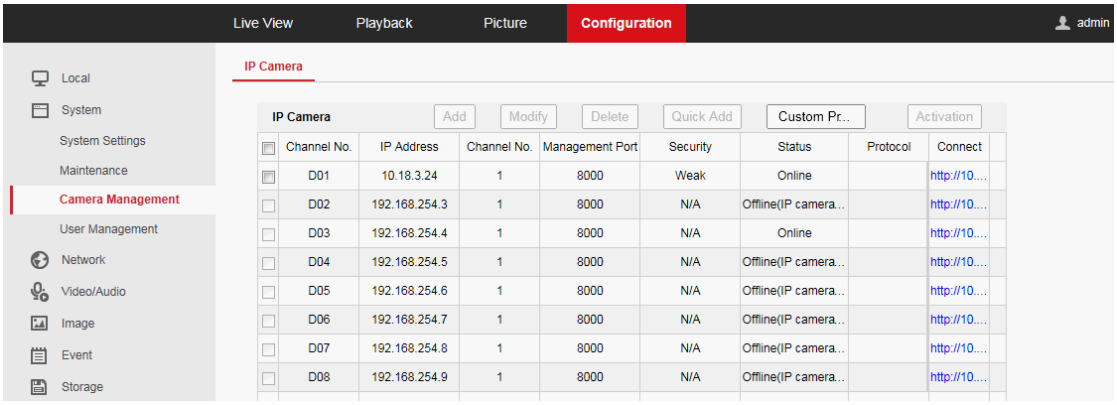
IP Camera Management

The IP Camera Management option allows you to log into those cameras connected directly to the POE ports on the back of the NVR. This can be used to access advanced camera features not accessible through the NVR. In order to access cameras you must first check the virtual host box under Network Settings. (Remote Configuration → Network → Advanced → Others)



Once this box is checked you can enter the Camera Management section as shown below.

(System → Camera Management → IP Camera)

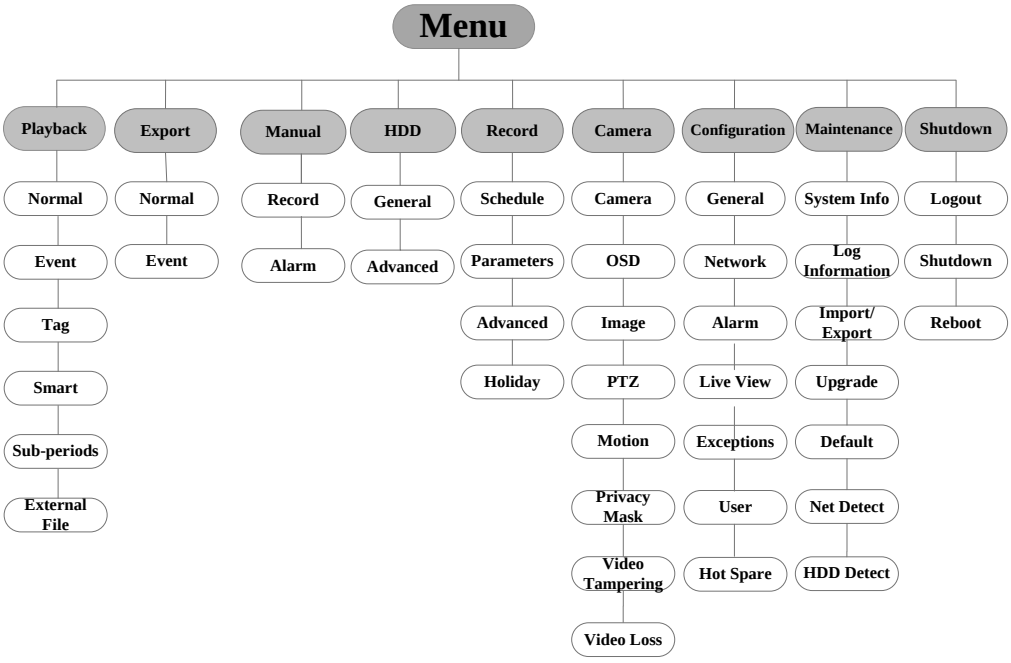


To log directly into a camera click on the cameras IP address under the Connect tab. You will then be prompted to enter the cameras username and password. Once you have entered the camera login information you will enter the cameras set up software and have access to advanced camera features.

NOTE For all settings not covered in this section please refere to the users manual for detailed information.

Menu Operation

Menu Structure



NOTE

The menu structure may vary according to different models.

Startup and Shutdown

Proper startup and shutdown procedures are crucial to expanding the life of the NVR.

To start your NVR:

Steps:

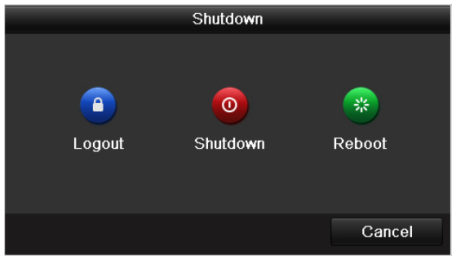
1. Check the power supply is plugged into an electrical outlet with correct voltage. It is HIGHLY recommended that an Uninterruptible Power Supply (UPS) be used in conjunction with the device.
2. After connecting the power supply (NVR4POE) or power cord (NVR8POE, NVR16POE) to the NVR, flip the power switch to the "ON" position represented by a (•) on the NVR4POE and a (-) on the NVR8POE, NVR16POE.
3. The Power LED should turn green and the unit will begin to start. After the device starting up, the wizard will guide you through the initial settings, including modifying password, date and time settings, network settings, HDD initializing, and recording. It is HIGHLY recommended to change default passwords.

To shut down the NVR:

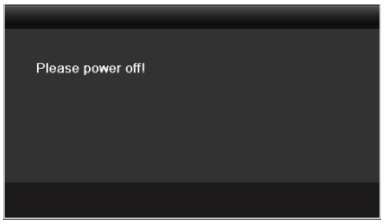
Steps:

1. Enter the Shutdown menu.

   Menu > Shutdown



2. Select the **Shutdown** button.
3. Click the **Yes** button.
4. Turn off the power switch on the rear panel when the attention pops up.



5. When the unit is powered down both the Power and Tx/Rx lights on front panel will be solid green.

Live View

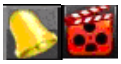
Some icons are provided on screen in Live View mode to indicate different camera status. These icons include:

Live View Icons

In the live view mode, there are icons at the upper-right corner of the screen for each channel, showing the status of the record and alarm in the channel, so that you can find problems as soon as possible.

Alarm (video loss, tampering, motion detection or sensor alarm)

Record (manual record, continuous record, motion detection or alarm triggered record)

 Alarm & Record

Event/Exception (event and exception information, appears at the lower-left corner of the screen.)

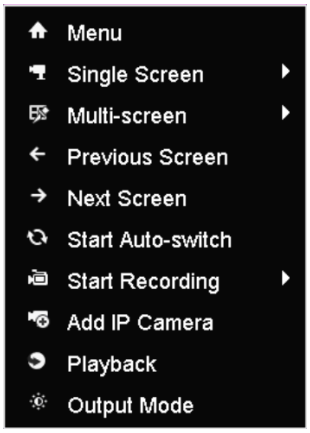
Adding IP Cameras

You should add and configure the online IP cameras to enable the live view and recording function.

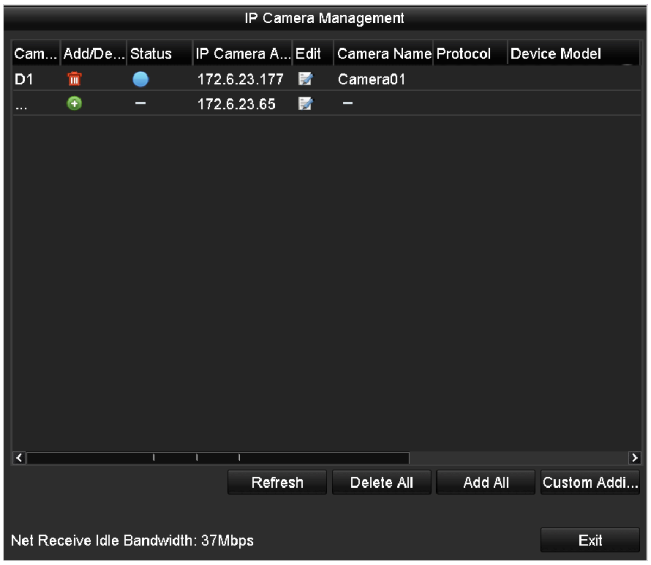
PnP PoE camera models IP3B, IP3T, IP3W, IP3VFB, IP3VFD will automatically display when connected to the PoE ports on the back of the NVR. The following information is for adding cameras on the network, not connected directly to the NVR.

Steps:

1. Right-click the mouse when in the live view mode to show the right-click menu.



2. Select **Add IP Camera** in the pop-up menu to enter the IP Camera Management interface.



3. The online cameras with same network segment will be displayed in the camera list. Click the button to add the camera.

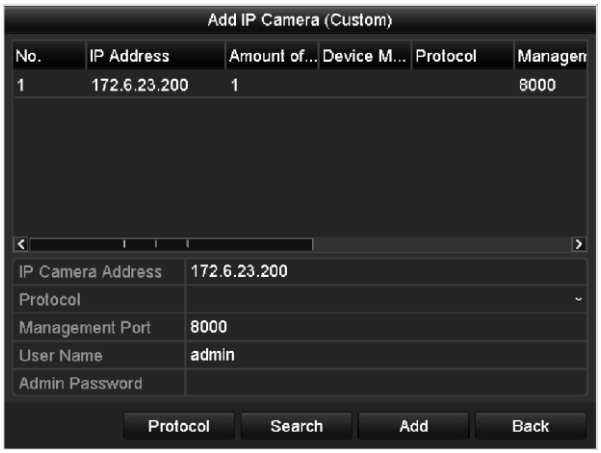
The added camera is marked in white while the camera has not been added is marked in yellow.

Explanation of the icons

Icon	Explanation	Icon	Explanation
	Edit basic parameters of the camera		Add the detected IP camera.
	The camera is connected.		The camera is disconnected; you can click the icon to get the exception information of camera.
	Delete the IP camera		Advanced settings of the camera.

4. To add other IP cameras:

1) Click the **Custom Adding** button to pop up the Add IP Camera (Custom) interface.



2) You can edit the IP address, protocol, management port, and other information of the IP camera to be added.

3) Click **Add** to add the camera.

4) (For the encoders with multiple channels only) check the checkbox of Channel No. in the pop-up window, as shown in the following figure, and click **OK** to finish adding.

Recording

Purpose:

Two kinds of record types are introduced in the following section, including Instant Record and All-day Record. And for other record types, you may refer to the user manual for detailed information.

NOTE

After rebooting all the manual records enabled are canceled.

Instant Recording

On the live view window of each channel, there is a quick setting toolbar which shows on the bottom of the window when you click on it.

Click the icon to enable the record, and the icon turns to . And click icon to disable the record, then the icon turns to .

All-day Recording

Steps:

1. On the live view window, right lick the window and move the cursor to the **Start Recording** option, and select **Continuous Record** or **Motion Detection Record** on your demand.
2. And click the **Yes** button in the popup Attention message box to confirm the settings.
   Then all the channels will start to record in the selected mode.

Playback

Play back the record files of a specific channel in the live view menu. Channel switch is supported.

- **Option 1:**

Choose a channel under live view using the mouse and click the button in the shortcut operation menu.

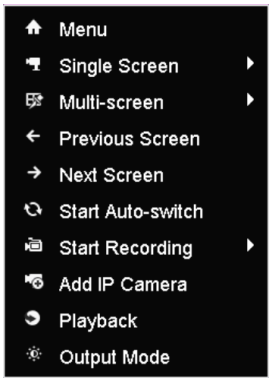
Only record files recorded during the past five minutes on this channel will be played back.

- **Option 2:**

Steps:

1. Enter the Playback menu.

   Mouse: right click a channel in live view mode and select Playback from the menu.



   Under multi-screen live view, record files of the selected channel will be played back.

NOTE

Pressing numerical buttons will switch playback to related channels during playback process.

2. Playback management.

   The toolbar in the bottom part of Playback interface can be used to control playing process.

   Just check the channel or channels if you want to switch playback to another channel or execute simultaneous playback of multiple channels.

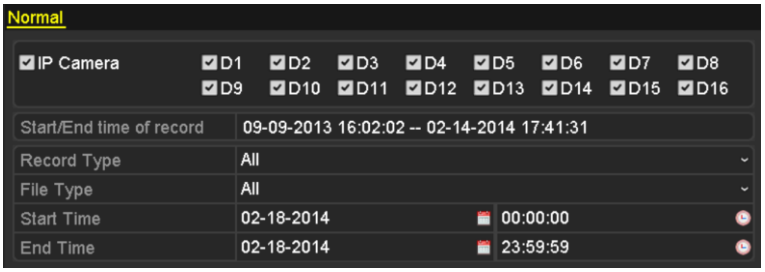
Backup

Recorded files can be backed up to various devices, such as USB flash drives, USB HDDs or a DVD writer.

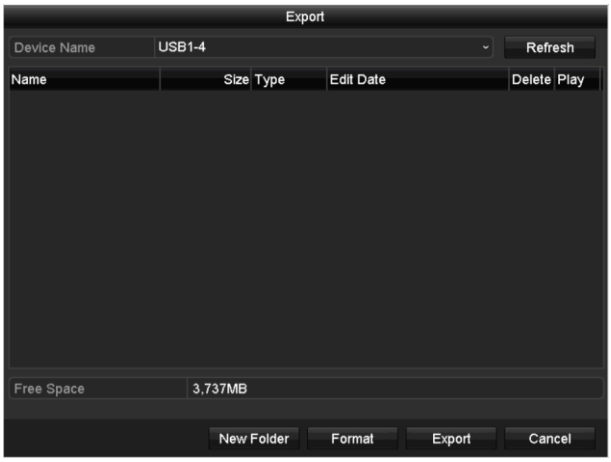
Steps:

1. Enter Video Export interface.

   Choose the channel(s) you want to back up and click on the **Quick Export** button.



2. Enter Export interface, choose backup device and click **Export** button to start exporting.



3. Check backup result.

Choose the recording file in Export interface and click button to check it.